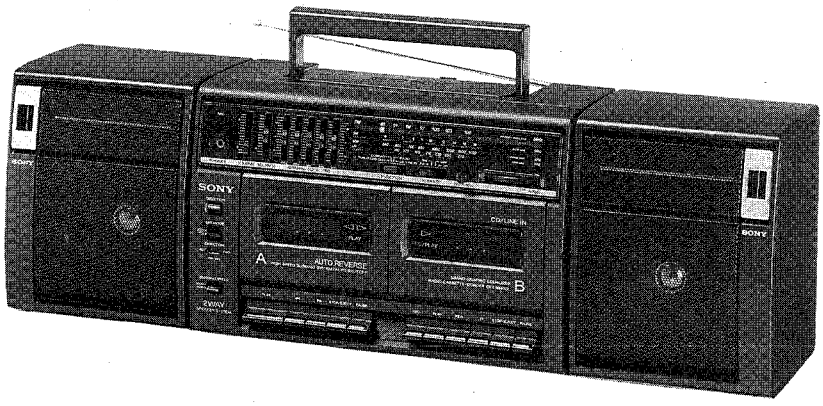
CFS-W450L

SERVICE MANUAL

AEP Model



Model Name Using Similar Mechanism		New
Tape Transport Mechanism Type	DECK A	MF-W450
	DECK B	(WSB47-405)

SPECIFICATIONS

Frequency range

FM	87.6 — 107 MHz
MW	531 — 1,602 kHz
LW	153 — 279 kHz
SW	5.95 — 18 MHz
Recording system	4-track 2-channel stereo
Frequency response	80 – 8,000 Hz
Speakers	Two way Approx. 10 cm (4 inches) dia. woofer × 2 Approx. 2 cm ($^{13}/_{16}$ inch) dia. tweeter × 2
Maximum power output	5W (2.5W + 2.5W)
Input	CD/LINE IN jacks (stereo phono jacks) (2) Input impedance 47 kilohms Sensitivity 0.44 V
Output	Headphones jack (stereo minijack) for 8 – 300-ohm impedance headphones
Power requirements	
Continental European model	220 V AC, 50 Hz 9 V DC, six R20 (size D) batteries
Power consumption	14W

Battery life

Battery	FM recording
Sony SUM-1 (NS)	Approx. 18 hours
Sony AM1 (N) alkaline	Approx. 30 hours

Dimensions	Approx. 605 × 195 × 160 mm (w/h/d) ($23^{7}/_{8} \times 7^{3}/_{4} \times 6^{3}/_{8}$ inches)
Weight	Approx. 4.5 kg (9 lb 15 oz) incl. batteries
Accessory supplied	AC power cord (1)

Design and specifications subject to change without notice.

MICROFILM

RADIO CASSETTE-CORDER

SONY®

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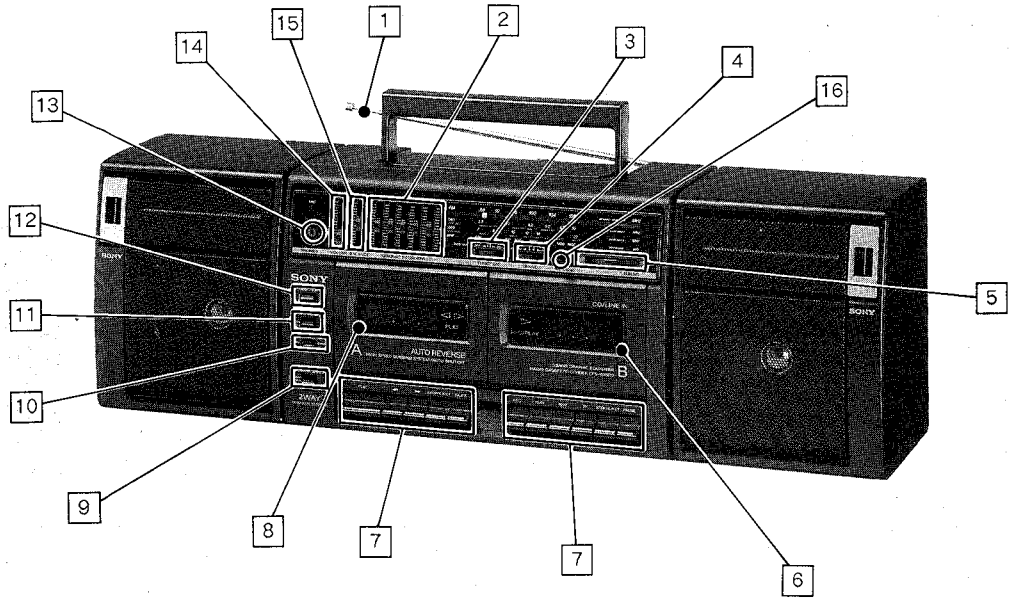
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

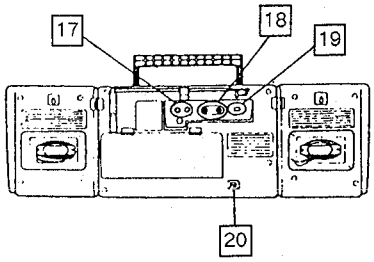
SECTION 1
GENERAL

LOCATION AND FUNCTION OF CONTROLS



[FRONT panel]

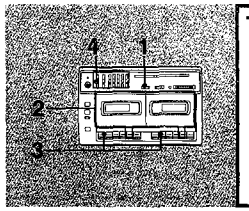
- 1 Telescopic antenna
- 2 5-BAND GRAPHIC EQUALIZER controls
- 3 FUNCTION selector
- 4 BAND selector
- 5 TUNING knob
- 6 Cassette holder B
- 7 Tape operation buttons
  - ● REC (record) button : (deck B only)
  - ▷ PLAY (play back) button
  - ◁◁ REW (rewind) button
  - ▷▷ FF (farst-forward) button
  - ▯⏏ STOP/EJECT button
  - ▯▯ PAUSE button
- 8 Cassette holder A
- 9 DUBBING SPEED button
- 10 DIRECTION REV/FWD (OPR/BATT) indicator
- 11 DIR MODE button
- 12 DIRECTION button
- 13 PHONES (headphones) jack (stereo minijack)
- 14 VOLUME knob
- 15 BALANCE knob
- 16 FINE TUNING knob



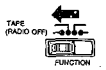
[REAR panel]

- 17 CD/LINE IN pin-jack
- 18 SPEAKER (L, R) jack (monoral minijack)
- 19 ISS (interference supperess switch) /FM MODE selector
- 20 AC IN

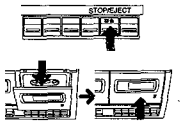
Tape Playback
(either deck)



1

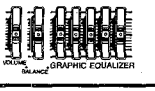


2 Insert a cassette.



3

4 Adjust VOLUME, BALANCE and GRAPHIC EQUALIZER, if necessary.



To stop playback

Tape operating buttons

When you want to:	Press
wind tape rapidly for ▶ direction	▶▶
rewind tape rapidly for ◀direction	◀◀
stop playback/recording	■⏏
release ▶▶ or ◀◀	■⏏
pause playback/recording	⏸
release pause	⏸

Be sure to press ■⏏ to release ▶▶ or ◀◀ at the tape end of each direction.

Notes
- During playback, avoid pressing the PLAY/REW/FF buttons of the other deck since the playback speed may vary.
- When both decks A and B are in the playback mode, only playback from deck B will be audible.

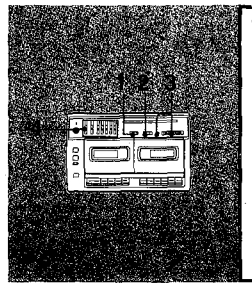
For private listening
Connect stereo headphones to PHONES jack.

When the unit is in use
DIRECTION indicator/OPR/BATT (operation/battery) indicator lights.
(FWD): Lights while playing the front side on deck A.
(REV): Lights while playing the reverse side on deck A.
Intensity of glow shows battery level.

On the side of the tape to be played on deck A
After you press ▶ the unit will play the front (FWD lights) and then reverse (REV lights) side of tape continuously. Slide DIR (direction) switch to ↿ to change the side of the cassette.

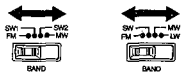
To select playback mode of deck A
Set the DIR MODE (direction mode) selector to the desired position.
⇀ To play back both sides of a cassette once, starting from the front side to the reverse side.
⇌ To play back both sides of a cassette repeatedly.

Listening to the Radio



1

2 Select the desired band.



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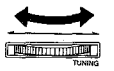
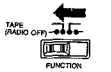
3 Tune in a desired station.



For better SW reception

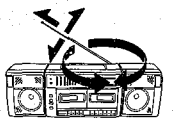
4 Adjust VOLUME, BALANCE and GRAPHIC EQUALIZER, if necessary.

To turn off the radio

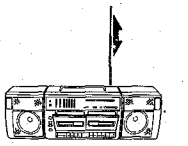


Antenna adjustment/Réglage

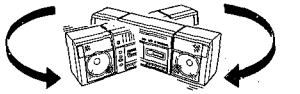
FM
UKW



SW
KW

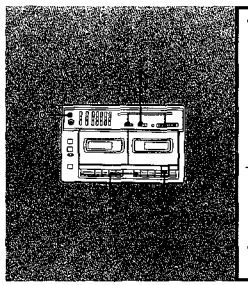


MW/LW



Graphic equalizer adjustments
These are the frequency coverages of the equalizer controls.
100 Hz: boosts or cuts bass.
300 Hz: speaking voice, middle frequencies of instrumental music.
1 kHz: provides more presence of vocals.
3 kHz: overall brightness of sound.
10 kHz: effects general treble. Lower to reduce high frequency noise.
Raise control to emphasize a frequency band, lower to deemphasize.

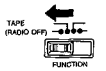
Recording
(deck B only)



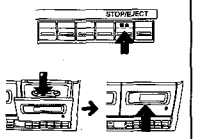
1 From radio

CFS-W450S CFS-W450L

From built-in microphone



2 Insert a cassette.



3

▶ is pressed automatically.

To stop recording

When the tape reaches the end, ● REC and ▶ PLAY are released automatically.

Notes on recording
- While recording, avoid pressing the ▶/◀◀/▶▶ buttons of deck A to assure stable recording.
- If a whistling noise is heard during MW/LW recording, which was inaudible before the record button is depressed, set ISS/FM MODE on the rear panel to 1, 2, or 3, depending on which one best reduces the noise.
- While recording from the built-in radio, you can listen to the program through speakers or headphones. While recording with the built-in microphone, the sound being recorded can be monitored through headphones.
- No volume adjustment is necessary. Recording level is automatically set. Volume adjustments will not affect recording level. Any setting of the GRAPHIC EQUALIZER control does not affect recording level.

To prevent accidental erasure/Pour

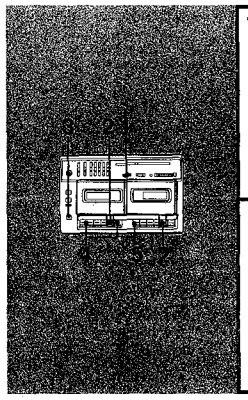
To protect side A recording

Break off the tab of side A.

To reuse a cassette

Cover each slot with plastic tape.

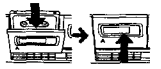
Tape Dubbing
(deck A to deck B)



1

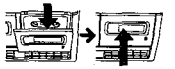
2 deck A

source cassette



deck B

blank cassette



3 Select dubbing speed.

To dub at high speed To dub at normal speed

4 on deck A

Depress ▶ and depress ⏸ at the point you want to start dubbing.

5 on deck B

A and B tapes start simultaneously.
This means tape dubbing starts (Synchro dubbing).

To stop dubbing

on deck A and deck B

After dubbing, set FUNCTION to TAPE (RADIO OFF).

Notes on dubbing
- If deck A's tape finishes first, deck B will continue playing. (Manually press ■⏏ to release locked buttons).
- If deck B's tape finishes first, deck A will continue playing.
- Do not change the dubbing speed during dubbing. As this causes excessive wow and flutter.

Listening to or Recording from other Component
(CD player, eg.)

Connect the other component to the CD/LINE IN jacks of this unit with the connecting cord RK-C74A (not supplied) and set the FUNCTION selector to CD/LINE IN.

This section is extracted from instruction manual.

DIAL POINTER INSTLLATION

1. Insert the pointer end into the clearance Ⓐ between MAIN CHASSIS and WHEEL GEAR to mesh.

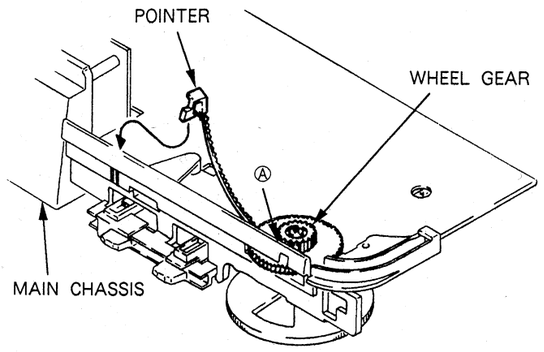


Fig. 1

2. Turn TUNING KNOB and set the edge of POINTER in the pointer guide line as shown in the illustration.

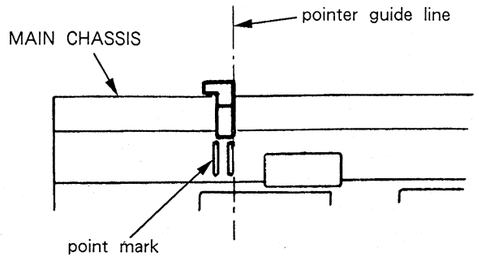


Fig. 2

3. Turn VC fully in the direction of arrow and set WHEEL DRUM to VC as shown on Fig. 3.

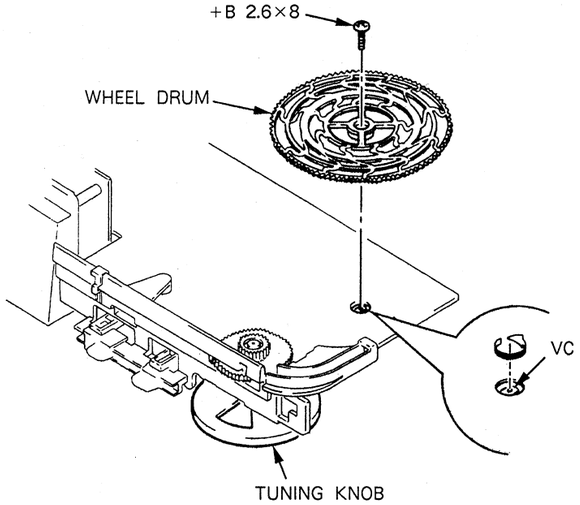


Fig. 3

SECTION 2
ADJUSTMENTS

TAPE SECTION

2-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab :
   record/playback head — erase head
   capstan — rubber belts
   pinch roller
   idlers
2. Demagnetize the head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torgue Measurement A-B DECK

Torque	Torque Meter	Meter Reading
Playback	CQ-102C	30-75g · cm (0.42-1.04 oz · inch)
Rewind / Fast Foward	CQ-201B	60-130g · cm (0.834-1.805 oz · inch)
Back Tension	CQ-102C	1.5-6g · cm (0.021-0.083 oz · inch)

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	DECK A : more than 90g (3.17 oz) DECK B : more than 150g (5.29 oz)

2-2. ELECTRICAL ADJUSTMENTS

Note : The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Switches and controls should be set as follows unless otherwise specified.
  FUNCTION : TAPE (RADIO OFF)
  VOLUME : standerd output
  BALANCE : mechanical mid
  GRAPHIC EQUALIZER : mechanical mid
- Standard Output Level

Output Terminal	PHONES	Speakers
load impedance	32 Ω	3.2 Ω
output level	0.25V (-10dB)	0.775V (0dB)

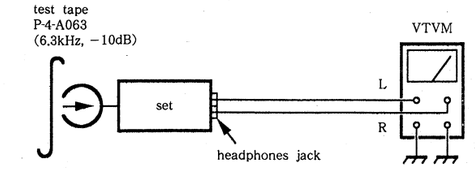
Test tape :

Type	Signal	Used for
WS-48B	3kHz, 0dB	Tape Speed Adjustment
P-4-A063	6.3kHz, -10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	Level Adjustment

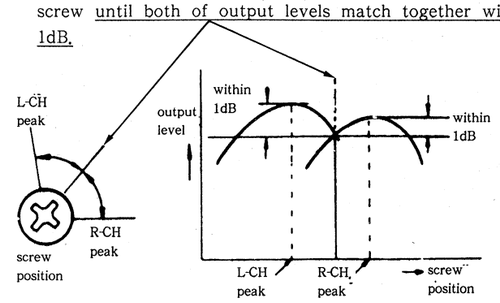
Record/playback Head Azimuth Adjustment DECK A DECK B

Procedure :

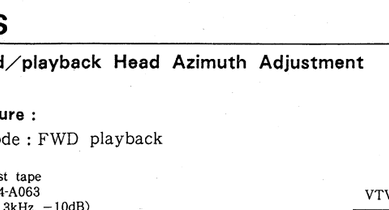
1. Mode : FWD playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.



Phase Check
Mode : playback

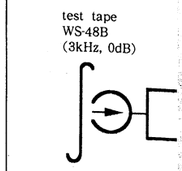


3. Set in the reverse mode and repeat the steps 1-2.
4. After the adjustment, lock the screws with locking compound.

Adjustment Location : Remove the Front Cabinet Assy

Tape Speed Adj

Procedure :
Mode : playbac

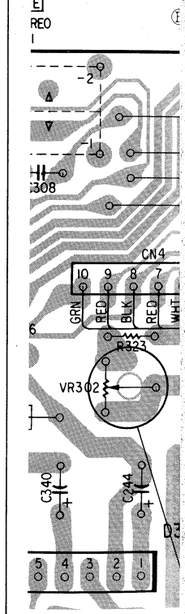


Connect point Ⓐ a
(It results in HIGH

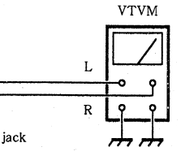
Adjustment Value

	Adjustm
High speed	Deck B
	Deck A
Normal speed	Deck B
	Deck A

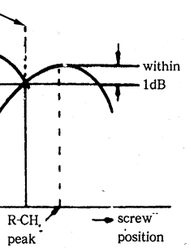
Adjustment Locati

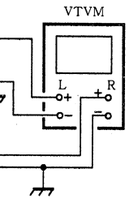


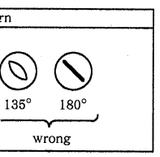
Adjustment DECK A DECK B



or the maximum output
natch, turn the adjustment
els match together within

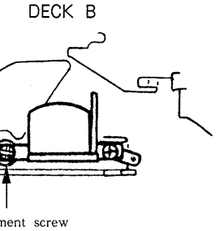






epeat the steps 1-2.
he screws with locking

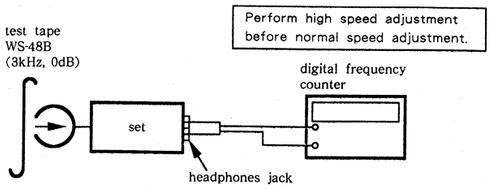
Front Cabinet Assy



Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback

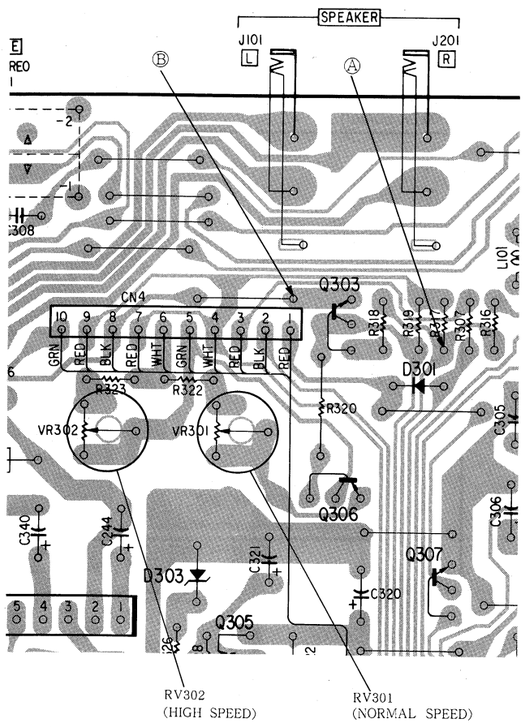


Connect point Ⓐ and Ⓑ with lead wire.
(It results in HIGH SPEED mode.)

Adjustment Value :

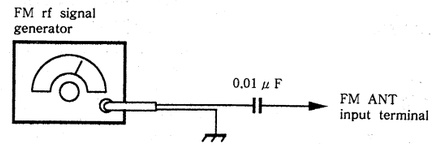
	Adjustment part	Adjust point	Digital frequency counter
High speed	Deck B VR302	Ⓐ – Ⓑ SHORT	5,990 to 6,010Hz
	Deck A confirm		
Normal speed	Deck B VR301	Ⓐ – Ⓑ OPEN	2,990 to 3,010Hz
	Deck A confirm		

Adjustment Location : Main board



RADIO SECTION

FM Section



FM SECTION

FM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
T1	10.7MHz
T3	10.7MHz

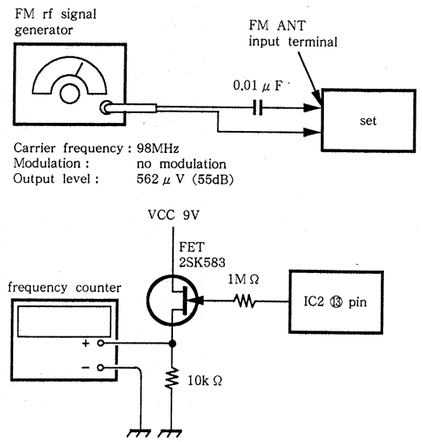
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
FC1	108.3MHz (108.25MHz)
L2	87MHz (87.35MHz)

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
FC2	108.3MHz (107.8MHz)
L1	87MHz (87.35MHz)

no mark : AEP
( ) : Italian

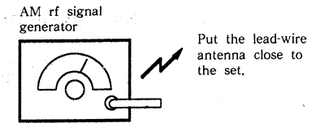
VCO Adjustment

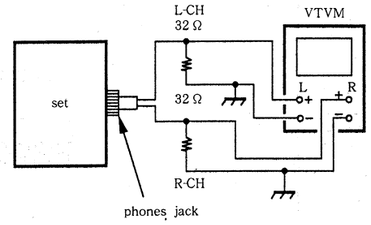
Procedure :



1. Connect frequency counter to IC2 ⑬ pin using left circuit.
2. Tune the set to 98MHz.
3. FM MODE SWITCH (SW4) should be set STEREO positions.
4. Adjust VR1 for 76kHz±0.2kHz reading on the frequency counter.

AM Section


AM rf signal
generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400Hz signal
Output level : as low as possible



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM SECTION

AM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
T2	455kHz

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC5	300kHz (293kHz)
L4	145kHz (140kHz)

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
AC2	260kHz
L7	160kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC4	1,680kHz (1,630kHz)
L8	515kHz (516kHz)

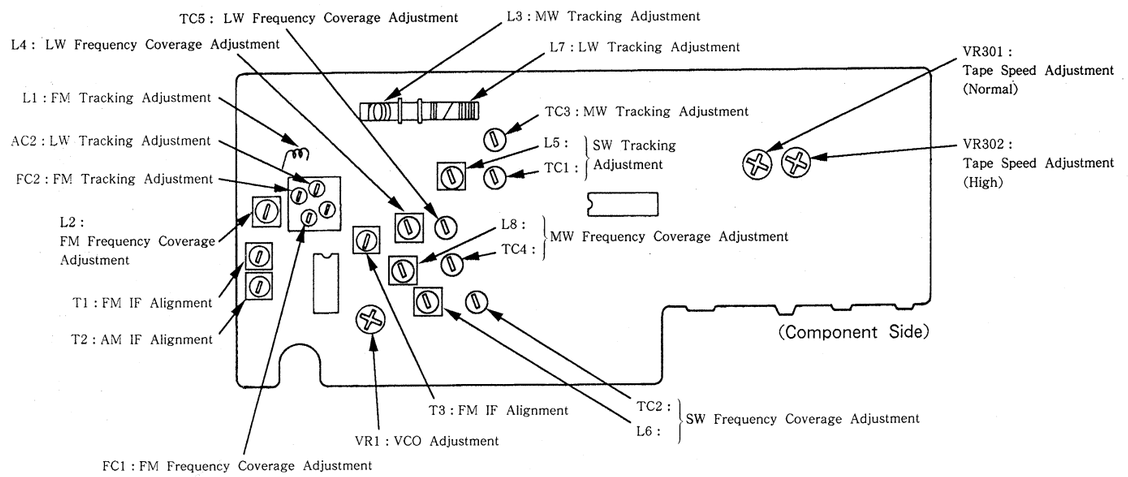
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC3	1,400kHz
L3	620kHz

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC2	18.4MHz
L6	5.8MHz

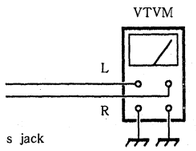
SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC1	18.4MHz
L5	5.8MHz

no mark : AEP
( ) : Italian

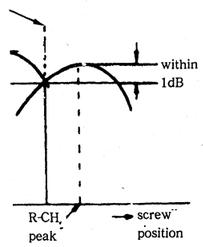
Adjustment Location : main board

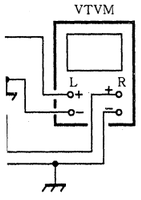


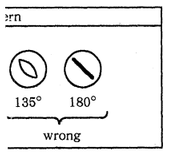
:h Adjustment DECK A DECK B



for the maximum output
match, turn the adjustment
vels match together within



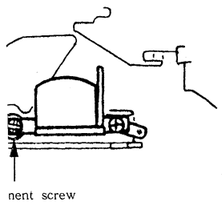




epeat the steps 1-2.
he screws with locking

Front Cabinet Assy

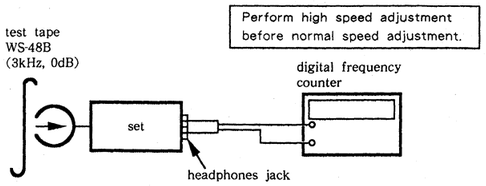
DECK B



Tape Speed Adjustment DECK A DECK B

Procedure :

Mode : playback

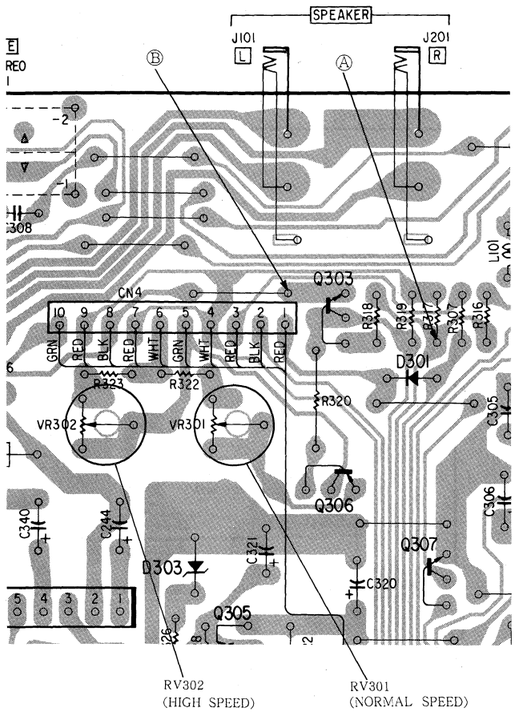


Connect point Ⓐ and Ⓑ with lead wire.
(It results in HIGH SPEED mode.)

Adjustment Value :

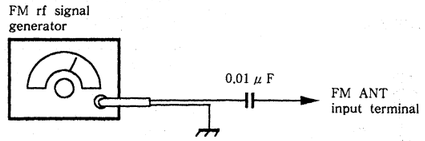
	Adjustment part		Adjust point	Digital frequency counter
High speed	Deck B	VR302	Ⓐ – Ⓑ SHORT	5,990 to 6,010Hz
	Deck A	confirm		
Normal speed	Deck B	VR301	Ⓐ – Ⓑ OPEN	2,990 to 3,010Hz
	Deck A	confirm		

Adjustment Location : Main board



RADIO SECTION

FM Section


FM rf signal generator
0.01 μ F
FM ANT input terminal
22.5kHz frequency deviation by 400Hz signal
Output level : as low as possible

FM SECTION

FM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
T1	10.7MHz
T3	10.7MHz

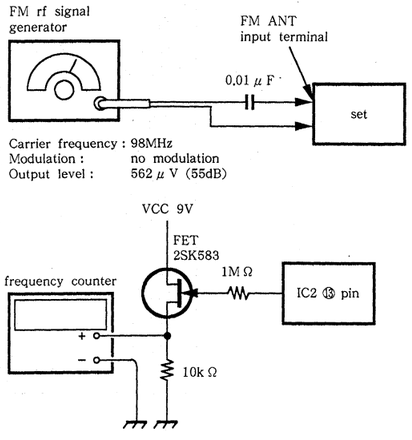
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
FC1	108.3MHz (108.25MHz)
L2	87MHz (87.35MHz)

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
FC2	108.3MHz (107.8MHz)
L1	87MHz (87.35MHz)

no mark : AEP
( ) : Italian

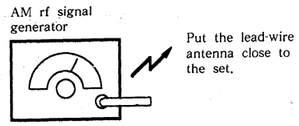
VCO Adjustment

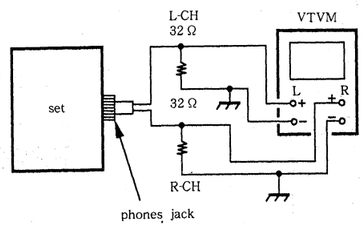
Procedure :



1. Connect frequency counter to IC2 ⑬ pin using left circuit.
2. Tune the set to 98MHz.
3. FM MODE SWITCH (SW4) should be set STEREO positions.
4. Adjust VR1 for 76kHz±0.2kHz reading on the frequency counter.

AM Section


AM rf signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400Hz signal
Output level : as low as possible



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM SECTION

AM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
T2	455kHz

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC5	300kHz (293kHz)
L4	145kHz (140kHz)

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
AC2	260kHz
L7	160kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC4	1,680kHz (1,630kHz)
L8	515kHz (516kHz)

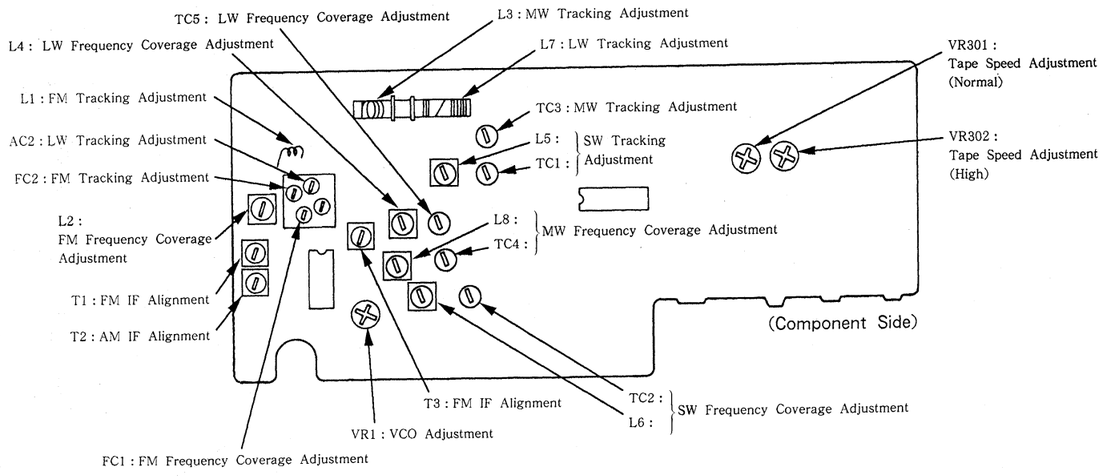
MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC3	1,400kHz
L3	620kHz

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC2	18.4MHz
L6	5.8MHz

SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
TC1	18.4MHz
L5	5.8MHz

no mark : AEP
( ) : Italian

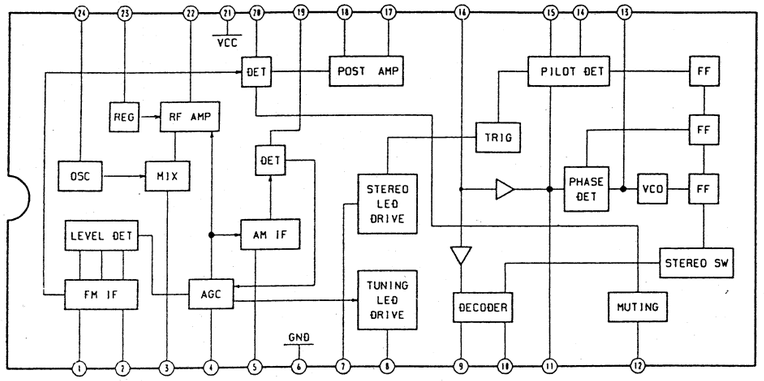
Adjustment Location : main board


TC5 : LW Frequency Coverage Adjustment
L3 : MW Tracking Adjustment
L4 : LW Frequency Coverage Adjustment
L7 : LW Tracking Adjustment
VR301 : Tape Speed Adjustment (Normal)
L1 : FM Tracking Adjustment
TC3 : MW Tracking Adjustment
AC2 : LW Tracking Adjustment
L5 : SW Tracking Adjustment
TC1 :
VR302 : Tape Speed Adjustment (High)
FC2 : FM Tracking Adjustment
L2 : FM Frequency Coverage Adjustment
L8 : MW Frequency Coverage Adjustment
TC4 :
T1 : FM IF Alignment
T2 : AM IF Alignment
(Component Side)
T3 : FM IF Alignment
TC2 : SW Frequency Coverage Adjustment
L6 :
VR1 : VCO Adjustment
FC1 : FM Frequency Coverage Adjustment

SECTION 3
DIAGRAMS

• IC BLOCK DIAGRAM

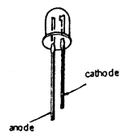
IC2 LA1805



3-1. SEMICONDUCTOR LEAD LAYOUTS

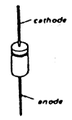
BA3308
TA7358P

SLR-34VR70F165



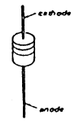
BA3822LS

RD6.8FB2
10E2
1S2472



DTA114ES
DTC114ES

1S202-1



2SA733-K
2SC2001-K2
2SC2878-B

KTC9013

DTC114TS

• SEMICONDUCTOR LOCATION

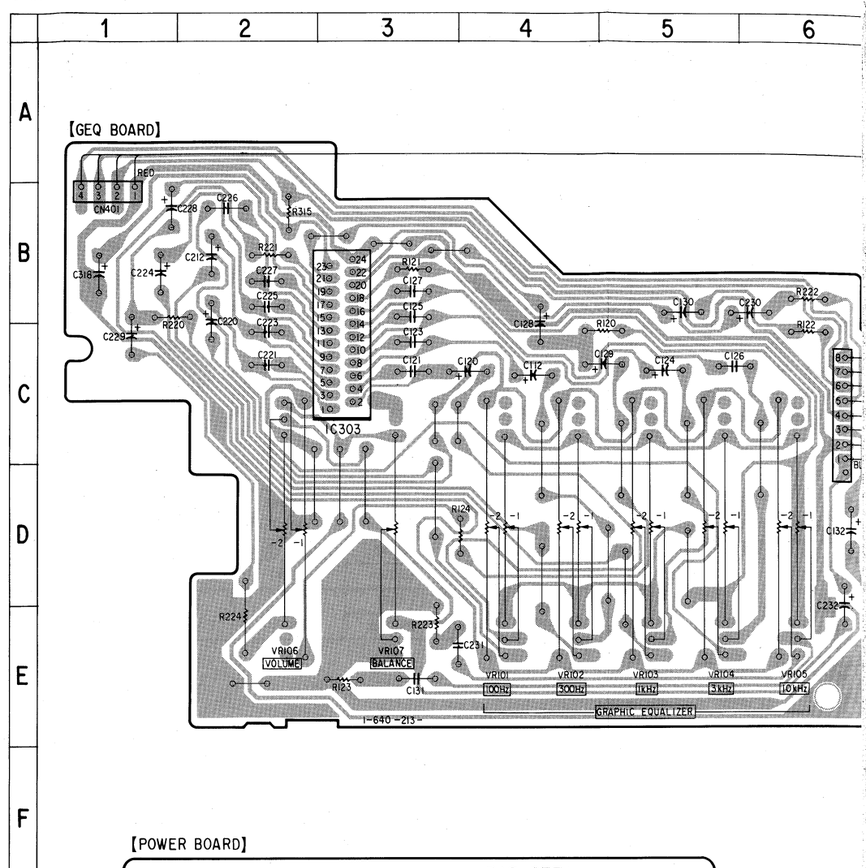
Ref. No.	Location
D1	B-19
D3	B-19
D301	C-12
D302	E-14
D303	D-11
D304	C-15
D401	H-5
D402	H-4
D403	I-5
D404	I-4
D405	K-9
IC1	C-20
IC2	E-19
IC301	D-13
IC302	B-14
IC303	C-3
IC304	D-10
LD1	K-9
LD2	J-9
Q1	F-20
Q101	B-13
Q102	E-9
Q201	B-13
Q202	E-9
Q301	D-12
Q302	C-15
Q303	B-11
Q304	B-8
Q305	D-11
Q306	C-11
Q307	D-12
Q308	F-13
Q310	F-14
Q311	E-10

Note :

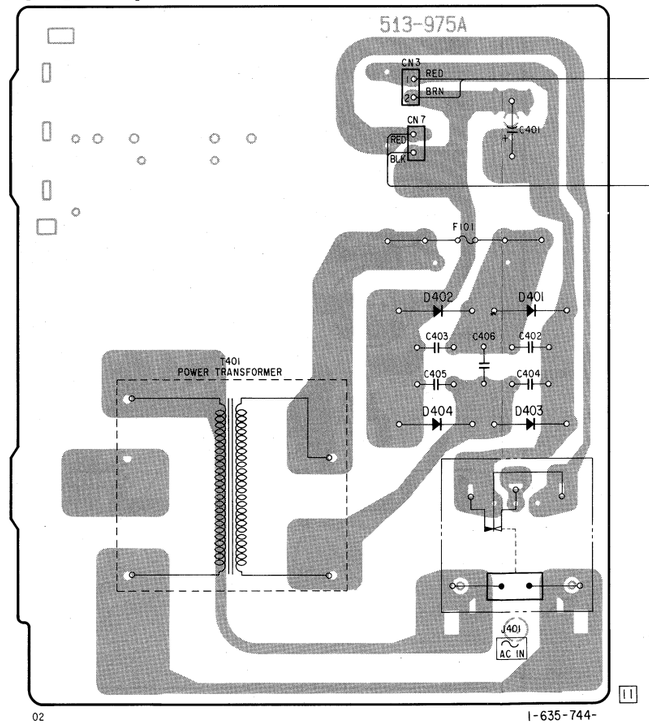
• ○— : parts extracted from the component side.
• ▒▒▒ : Pattern on the side which is seen.

3-2. PRINTED WIRING BOARDS

【GEQ BOARD】



【POWER BOARD】



【MAIN BOARD】

SW 4
ISS/FM MODE
MONO → STEREO
3 — 2 — 1

SPEAKER
J101 L
J201 R
IMPEDANCE : 3.2Ω

J501
CD/LINE IN
L R

ANT 1
TELECOPIC ANTENNA

LW L3 MW
FERRITE ROD ANTENNA

B·P·F 1

IC1 IC2 IC301 IC302 IC304

VC1 TUNING

FE FINE TUNING

SW1 BAND LW MW SW FM

SW 3 REC PB

SW 2
FUNCTION
TAPE (RADIO OFF) → DUBBING → RADIO → CD/LINE IN

【JACK BOARD】
J301 PHONES
ECM 1 MIC
1-640-212-

【BATTERY BOARD】
DRY BATTERY
SIZE "D"
IEC DESIGNTION R20
6PCS 9V
1-640-242-

【DIR LED BOARD】
CNT401
SW401 DUBBING SPEED HIGH — NOR
DIRECTION
LD2 REV
LD1 FWD
OPR/BATT
D405
1-640-214-
SL401 DIRECTION

GRAPHIC EQUALIZER
VR101 100Hz
VR102 300Hz
VR103 1kHz
VR104 5kHz
VR105 10kHz

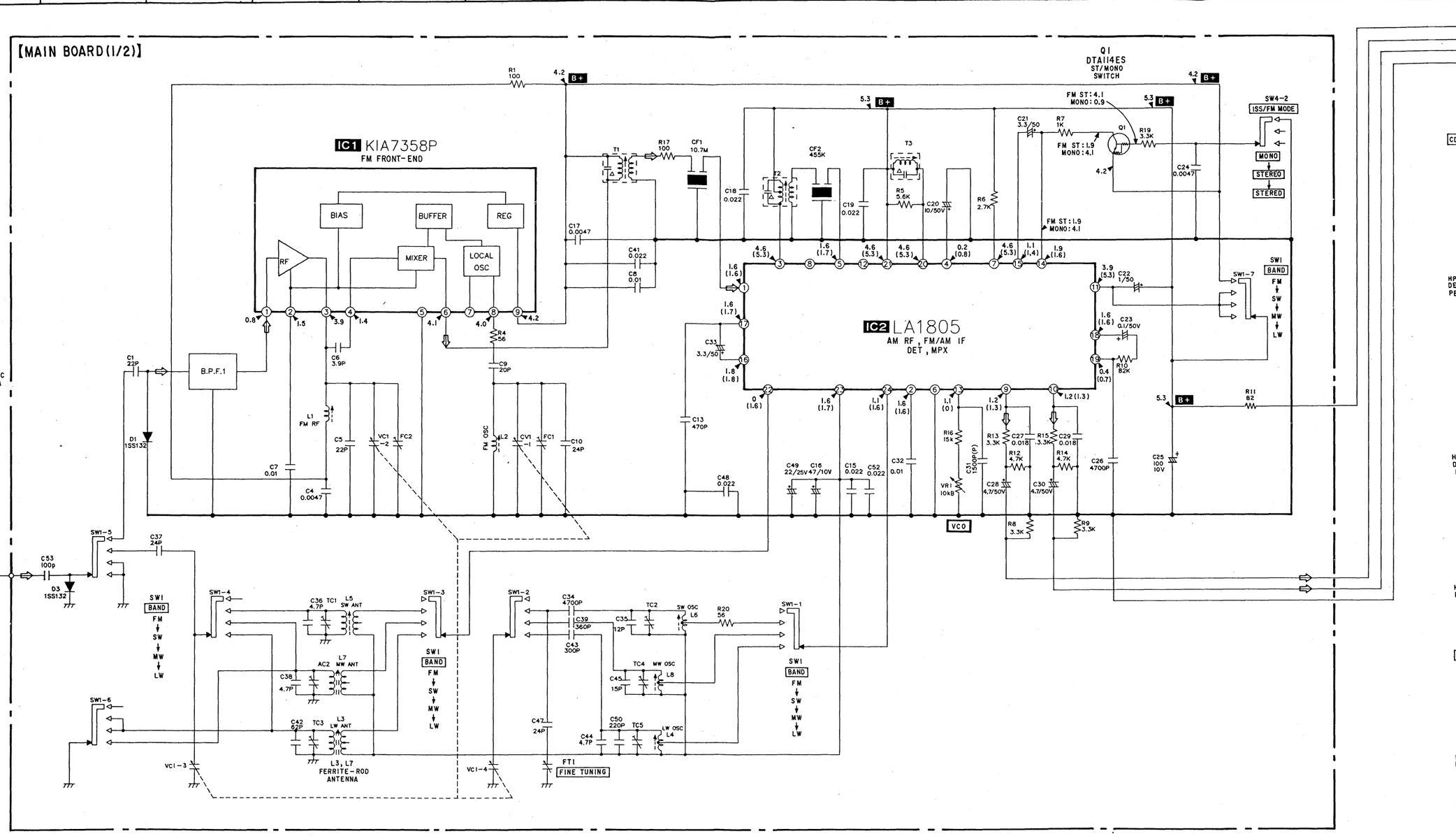
513-975A
J401 AC IN
F101
1-635-744-

HP101 DECK-A PB HEAD
HRP101 DECK-B REC/PB HEAD
(RED) (GRY)

SL102 (DECK-A FF/REW)
SL202 (DECK-B FF/REW)
M101 MOTOR
SL201 (DECK-B PB/REC)
SL101 (DECK-A PB)

1-635-975-

B·P·F 1



02

Note :

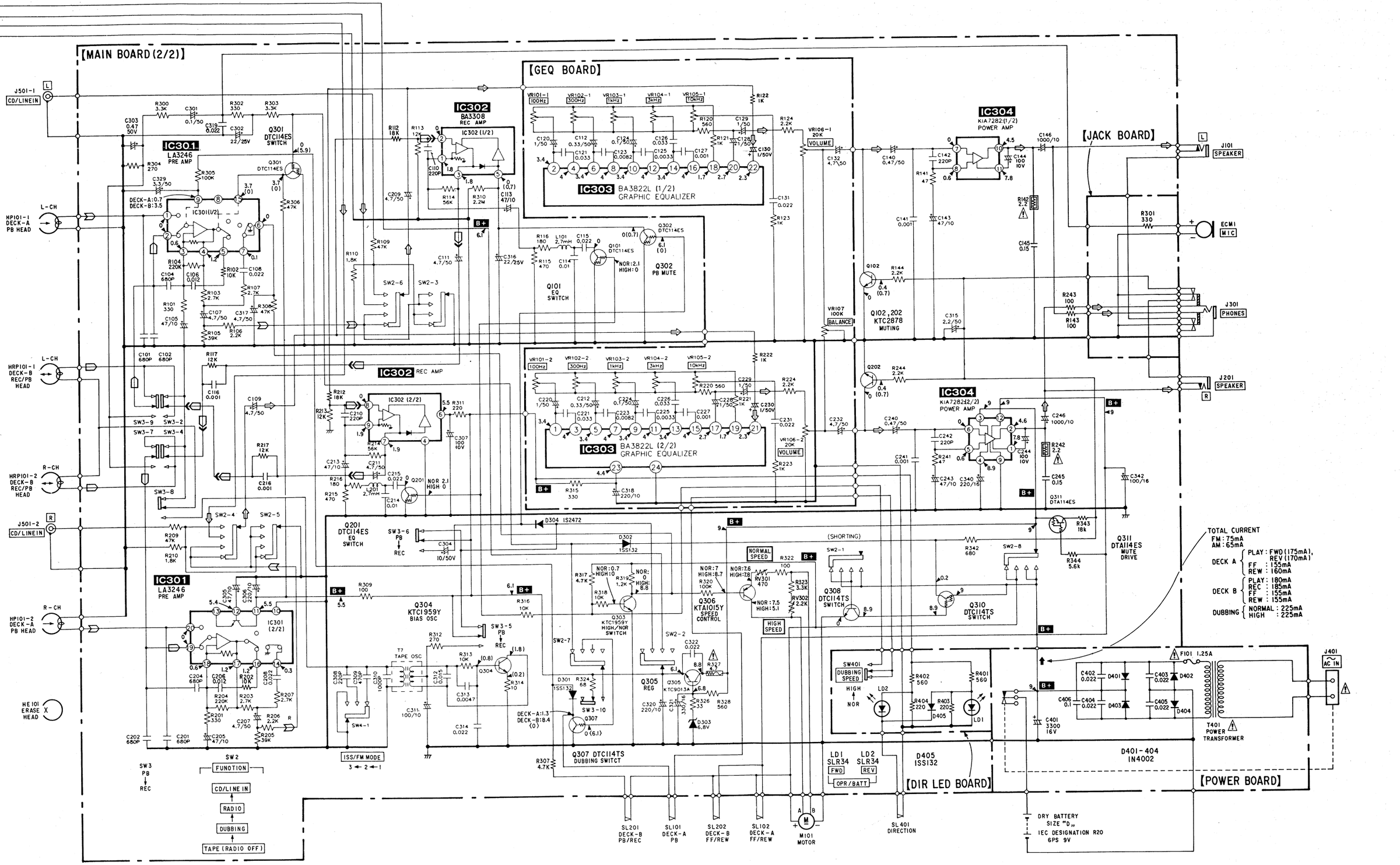
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.

- no mark : FM (RADIO SECTION) Playback (AUDIO SECTION)
- ( ) : AM (RADIO SECTION) REC (AUDIO SECTION)
- 〈 〉 : DUBBING
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.

- Signal path.
  - ⇨ : FM
  - ⇨ : PB (DECK A)
  - ⇨ : PB (DECK B)
  - ⇨ : REC (DECK B)


【MAIN BOARD(2/2)】
【GEQ BOARD】
【JACK BOARD】
【DIR LED BOARD】
【POWER BOARD】
IC301 LA3246 PRE AMP
IC302 BA3308 REC AMP
IC302 REC AMP
IC303 BA3822L (1/2) GRAPHIC EQUALIZER
IC303 BA3822L (2/2) GRAPHIC EQUALIZER
IC304 KIA7282(1/2) POWER AMP
IC304 KIA7282(2/2) POWER AMP
Q101 EQ SWITCH
Q102,202 KTC2878 MUTING
Q201 DTC114ES EQ SWITCH
Q301 DTC114ES SWITCH
Q302 PB MUTE
Q303 KTC1959Y HIGH/NOR SWITCH
Q304 KTC1959Y BIAS OSC
Q305 REG
Q306 KTA1015Y SPEED CONTROL
Q307 DTC114TS DUBBING SWITCT
Q308 DTC114TS SWITCH
Q310 DTC114TS SWITCH
Q311 DTA114ES MUTE DRIVE
J501-1 CD/LINEIN
J501-2 CD/LINEIN
HP101-1 DECK-A PB HEAD
HRP101-1 DECK-B REC/PB HEAD
HP101-2 DECK-A PB HEAD
HRP101-2 DECK-B REC/PB HEAD
HE101 ERASE HEAD
J101 SPEAKER
J201 SPEAKER
J301 PHONES
ECM1 MIC
J401 AC IN
F101 1.25A
T401 POWER TRANSFORMER
T7 TAPE OSC
D401-404 IN4002
D405 ISS132
D301 ISS132
D302 ISS132
D303 6.8V
D304 IS2472
LD1 SLR34 FWD
LD2 SLR34 REV
OPR/BATT
SW401 DUBBING SPEED
HIGH
NOR
SW2 FUNCTION
CD/LINE IN
RADIO
DUBBING
TAPE (RADIO OFF)
SW3 PB REC
ISS/FM MODE
3 2 1
SW2-1 SW2-2 SW2-3 SW2-4 SW2-5 SW2-6 SW2-7 SW2-8
SW3-1 SW3-2 SW3-3 SW3-4 SW3-5 SW3-6 SW3-7 SW3-8 SW3-9 SW3-10
SW4-1
VR101-1 100HZ
VR102-1 300HZ
VR103-1 1KHZ
VR104-1 3KHZ
VR105-1 10KHZ
VR101-2 100HZ
VR102-2 300HZ
VR103-2 1KHZ
VR104-2 3KHZ
VR105-2 10KHZ
VR106-1 20K VOLUME
VR106-2 20K VOLUME
VR107 100K BALANCE
NORMAL SPEED
HIGH SPEED
(SHORTING)
TOTAL CURRENT
FM : 75mA
AM : 65mA
DECK A { PLAY : FWD(175mA), REV(170mA) FF : 155mA REW : 160mA
DECK B { PLAY : 180mA REC : 185mA FF : 155mA REW : 155mA
DUBBING { NORMAL : 225mA HIGH : 225mA
DRY BATTERY SIZE "D" IEC DESIGNATION R20 6PS 9V
SL201 DECK-B PB/REC
SL101 DECK-A PB
SL202 DECK-B FF/REW
SL102 DECK-A FF/REW
SL401 DIRECTION
M101 MOTOR

SECTION 4
EXPLODED VIEWS

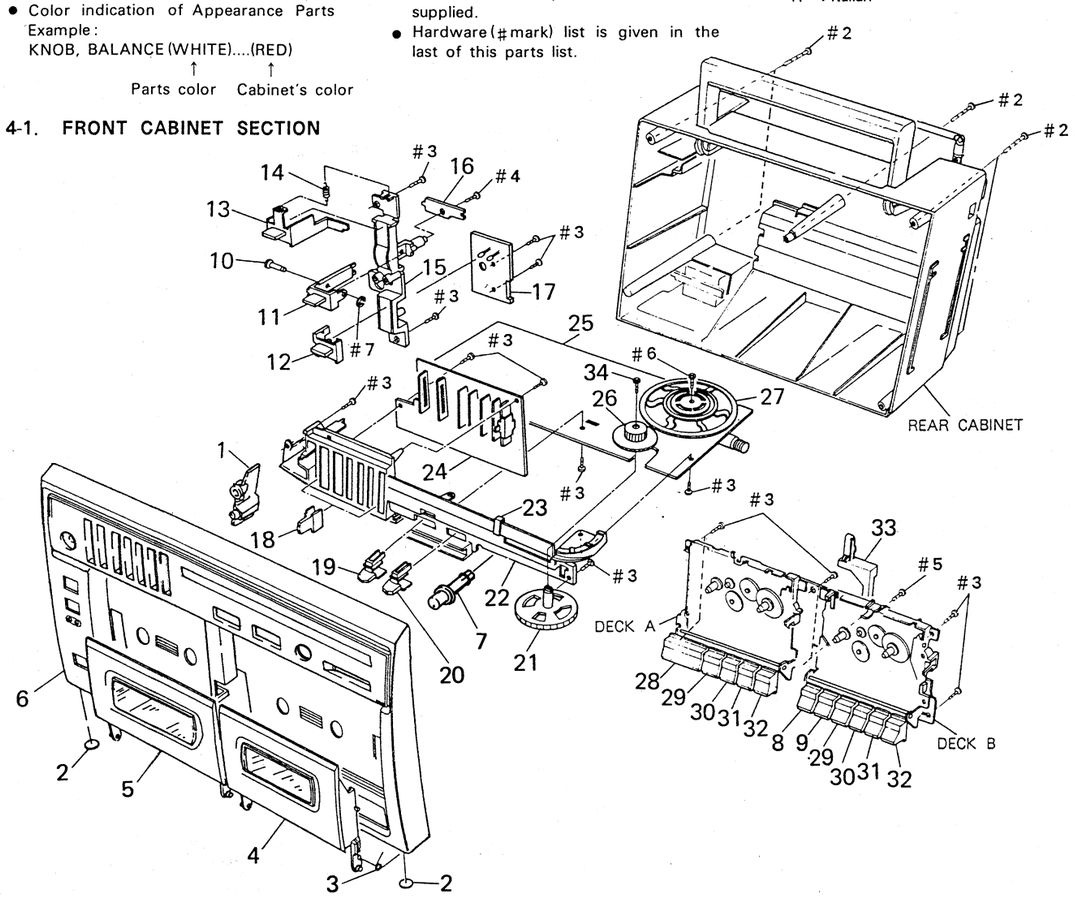
NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE)....(RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

IT : Italian

4-1. FRONT CABINET SECTION


#2
#2
#2
#3
#4
#3
#3
#3
#7
#3
#6
#3
#3
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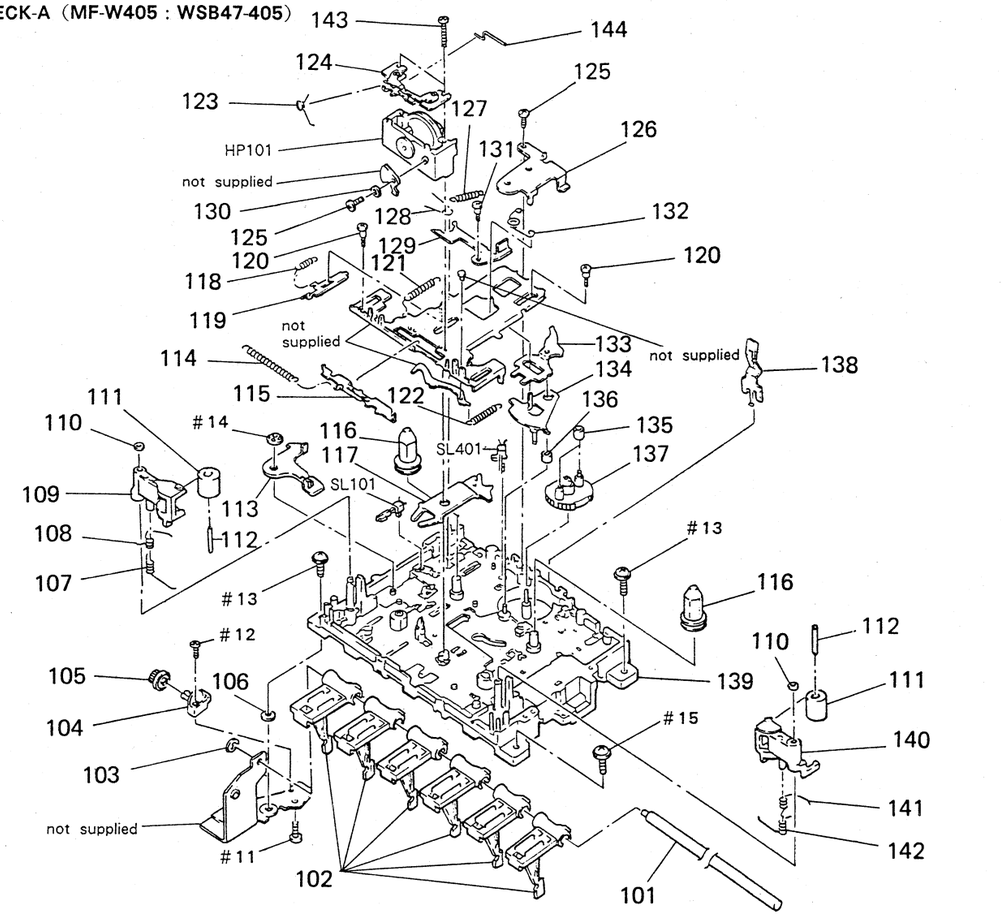
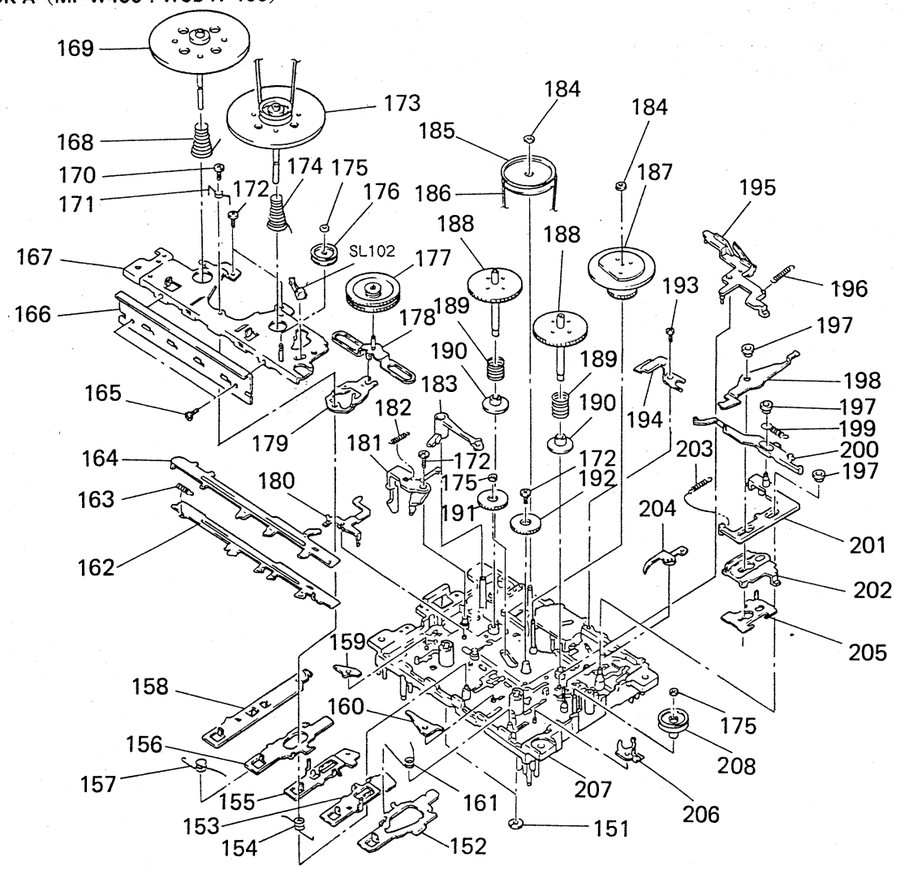
4-3. MECHANISM SECTION
DECK-A (MF-W405 : WSB47-405)



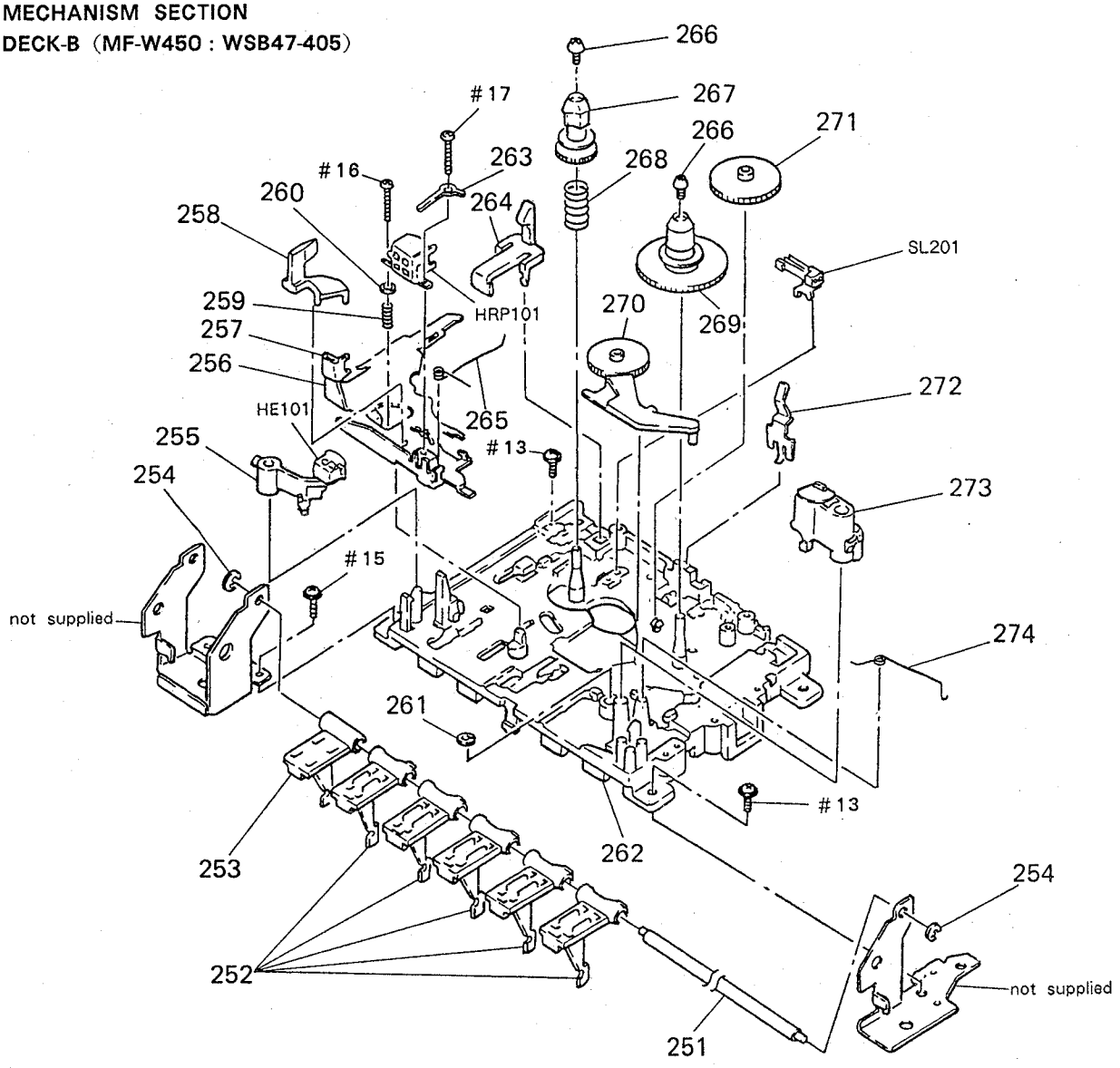
Ref.No.	Part No.	Description	Remark
101	* 3-393-314-01	BUTTON-SHAFT	
102	3-349-134-01	BASE, BUTTON	
103	* 3-393-315-01	E-RING	
104	3-390-843-01	HOLDER, GEAR	
105	3-390-844-01	GEAR	
106	3-393-228-01	WASHER	
107	3-393-152-01	SPRING	
108	3-393-153-01	SPRING	
109	3-393-112-01	ARM PINCH-L	
110	3-393-227-01	WASHER	
111	3-393-149-01	ROLLER PINCH	
112	3-393-113-01	SHAFT	
113	* 3-369-951-01	PLATE, PROTECT REC	
114	3-393-106-01	SPRING	
115	* 3-369-937-01	PLATE ASSY, SLIDE	
116	3-391-086-01	CAP RELL	
117	* 3-391-090-01	PLATE REVERSE-C	
118	3-369-942-01	SPRING	
119	* 3-369-941-01	LEVER, GEAR STOP	
120	3-393-221-01	SCREW	
121	3-391-096-01	SPRING	
122	3-391-095-01	SPRING	
123	3-393-105-01	SPRING	
124	X-3364-435-1	ASSY AZIMUTH PLATE	
125	4-894-960-01	BUSH	
126	3-393-109-01	HOLDER GEAR	
127	3-391-093-01	SPRING	
128	3-391-094-01	SPRING	
129	* 3-391-092-01	PLATE MO JOINT	
130	* 3-369-954-01	WASHER	
131	3-396-808-01	SCREW	
132	3-363-223-01	SPRING	
133	* 3-391-091-01	PLATE REVERSE-D	
134	X-3391-008-1	ASSY IDLER PLATE	
135	3-391-089-01	COLLER B	
136	3-369-952-01	COLLAR	
137	X-3391-007-1	ASSY REVERSE GEAR C	
138	3-393-209-01	PLATE SPRING	
139	* 3-369-936-01	CHASSIS ASSY, MECHA	
140	3-393-111-01	ARM PINCH-R	
141	3-393-151-01	SPRING	
142	3-393-150-01	SPRING	
143	3-393-218-01	SCREW	
144	3-396-737-01	SPRING	
HP101	X-3364-434-1	HEAD ASSY (PLAYBACK)	
SL101	1-571-745-11	SWITCH, LEAF (DECK-A PB)	
SL401	1-571-745-11	SWITCH, LEAF (DIRECTION)	

4-4. MECHANISM SECTION
DECK-A (MF-W450 : WSB47-405)



Ref.No.	Part No.	Description	Remark
151	**4-894-969-01**	**N WASHER**	
152	3-393-171-01	LEVER PLAY B	
153	* 3-369-944-01	LEVER, REW	
154	3-393-165-01	SPRING	
155	* 3-369-943-01	LEVER, FF	
156	3-393-160-01	LEVER STOP	
157	3-396-755-01	SPRING	
158	3-393-156-01	LEVER PAUSE	
159	3-393-158-01	ARM PAUSE	
160	3-393-170-01	ARM CUE STOP	
161	3-393-167-01	SPRING	
162	* 3-369-945-01	PLATE, FUNCTION (A)	
163	3-396-767-01	SPRING	
164	* 3-369-946-01	PLATE, FUNCTION (B)	
165	3-396-801-01	SCREW	
166	* 3-396-800-01	HOLDER	
167	* 3-369-947-01	HOLDER ASSY, LEVER	
168	3-393-205-01	SPRING	
169	3-369-950-01	FLYWHEEL (F) ASSY	
170	3-393-221-01	SCREW	
171	3-393-177-01	SPRING	
172	4-894-960-01	BUSH	
173	3-369-949-01	FLYWHEEL (R) ASSY	
174	3-393-206-01	SPRING	
175	3-393-225-01	WASHER	
176	* 3-369-948-01	PULLEY	
177	X-3391-016-1	ASSY FF TENTION A	
178	X-3391-012-1	ASSY FF IDLER PLATE	
179	3-393-176-01	LEVER FF IDLER	
180	3-393-155-01	PLATE SENSER STOP	
181	3-396-773-01	LEVER EJECT	
182	3-393-179-01	SPRING	
183	3-393-190-01	ARM SENSER STOP	
184	3-393-226-01	WASHER	
185	3-393-191-01	PULLY DRIVE	
186	3-396-796-01	BELT	
187	X-3391-015-1	ASSY TENTION	
188	3-391-085-01	GEAR RELL	
189	3-391-087-01	SPRING	
190	3-391-088-01	REEL BUSH-D	
191	3-393-154-01	GEAR IDLER	
192	3-391-084-01	GEAR FWD	
193	3-396-791-01	SCREW	
194	3-396-790-01	PLATE SPRING DR	
195	3-393-182-01	LEVER DR	
196	3-393-183-01	SPRING	
197	3-393-189-01	BUSH	
198	* 3-396-781-01	LEVER CANCEL	
199	3-393-186-01	SPRING	
200	3-393-185-01	LEVER SENSER-B	
201	3-393-184-01	LEVER SENSER	
202	3-393-181-01	LEVER MO	
203	3-393-187-01	SPRING	
204	3-393-169-01	PLATE SWITCH-C	
205	3-393-180-01	PLATE MO	
206	3-393-168-01	PLATE SWITCH-A	
207	* 3-369-936-01	CHASSIS ASSY, MECHA	
208	3-393-192-01	PULLY	
SL102	1-571-556-11	SWITCH, LEAF (DECK-A FF/REW)	

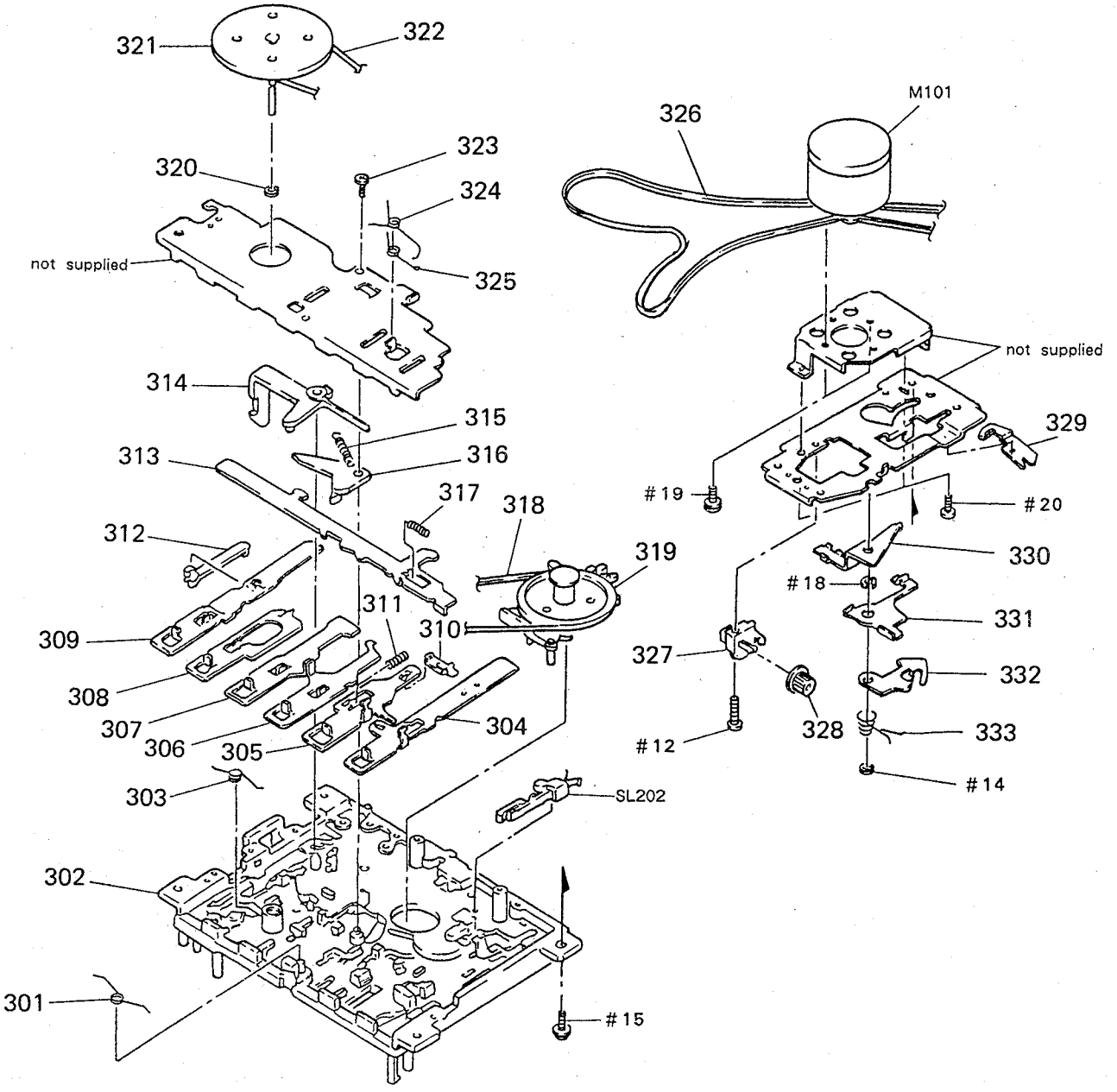
4-5. MECHANISM SECTION
DECK-B (MF-W450 : WSB47-405)



Ref. No.	Part No.	Description	Remark
251	* 3-393-881-01	SHAFT	
252	3-349-134-01	BASE, BUTTON	
253	3-392-147-01	LEVER (R), BUTTON	
254	* 3-393-315-01	E-RING	
255	3-391-055-01	E HEAD ARM	
256	* 4-895-015-01	HEAD BASE	
257	4-895-016-01	TAPE GUIDE	
258	4-894-956-01	TAPE SENSOR	
259	4-894-955-01	C SPRING	
260	3-390-823-01	WASHER, F	
261	4-894-969-01	N WASHER	
262	4-894-968-01	CHASSIS ASSY	
263	* 3-369-934-01	PLATE, LUG	
264	4-894-958-01	INTERLOCK ARM	
265	3-390-804-01	SPRING, PINCH ARM	
266	3-390-803-01	BUSHING (D)	
267	4-894-953-01	S REEL	
268	4-894-954-01	C SPRING	
269	X-3391-004-1	T REEL ASSY	
270	3-396-706-01	ASSY IDLER ARM	
271	4-894-964-01	F GEAR	
272	4-894-966-01	SPRING	
273	3-390-805-01	PINCH ARM ASSY	
274	4-894-967-01	SPRING	
HE101	1-543-558-11	HEAD, ERESE	
HRP101	1-543-727-11	HEAD (RECORD/PLAYBACK)	
SL201	1-571-555-11	SWITCH, LEAF (DECK-B PB/REC)	

4-6. MECHANISM SECTION

DECK-B (MF-W450 : WSB47-405)



Ref. No.	Part No.	Description	Remark
301	4-894-999-01	SPRING	
302	4-894-968-01	CHASSIS ASSY	
303	4-894-989-01	SPRING	
304	* 4-894-994-01	REC LEVER	
305	* 3-390-810-01	LEVER, PLAY	
306	* 3-391-051-01	REW LEVER	
307	* 3-391-052-01	FF LEVER	
308	* 4-894-987-01	S. E LEVER	
309	* 4-894-986-01	PAUSE LEVER	
310	* 3-390-811-01	LEVER, REC STOP	
311	3-390-827-01	SPRING	
312	4-894-985-01	PAUSE ARM	
313	* 4-894-984-01	FUNCTION LEVER	
314	4-894-980-01	EJECT ARM	
315	3-390-809-01	SPRING	
316	4-894-982-01	S ARM	
317	4-894-983-01	C SPRING	
318	3-561-892-00	BELT, SQUARE	
319	3-396-708-01	ASSY DRIVE PULLY	
320	3-396-704-01	WASHER	
321	X-3391-002-1	FLYWHEEL ASSY	
322	3-369-933-01	BELT	
323	3-390-822-01	BUSHING (C)	
324	4-894-978-01	SPRING	
325	3-369-935-01	SPRING, REC	
326	3-396-797-01	BELT	
327	3-390-843-01	HOLDER, GEAR	
328	3-390-844-01	GEAR	
329	* 3-396-799-01	ASSY PAUSE ARM	
330	4-895-006-01	CONNECT LEVER	
331	4-895-005-01	UNLOCK PLATE	
332	4-895-004-01	LOCK PLATE	
333	4-895-003-01	SPRING	
M101	* 3-369-955-01	MOTOR ASSY	
SL202	1-572-394-11	SWITCH, LEAF (DECK-B FF/REW)	

SECTION 5
ELECTRICAL PARTS LIST

BATT DIR LED GEQ

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- —XX, —X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA....: μA...., uPA....: μPA....
  uPB....: μPB...., uPC....: μPC....
  uPD....: μPD....
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

IT : Italian

Ref. No.	Part No.	Description			Remark
	* 1-640-242-11	BATT BOARD			
		**********			
**********					
	1-640-218-11	DIR LED BOARD			
		**********			
		< CONNECTOR >			
CN402	* 1-573-595-11	WAFER, CONNECTOR 2P			
		< DIODE >			
D405	8-719-107-94	DIODE 1SS202-1			
		< LED >			
LD1	8-719-948-75	LED SLR-34VR70F165 (FWD/OPR/BATT)			
LD2	8-719-948-75	LED SLR-34VR70F165 (REV/OPR/BATT)			
		< RESISTOR >			
R401	1-249-414-11	CARBON	560	5%	1/4W
R402	1-249-414-11	CARBON	560	5%	1/4W
R403	1-249-409-11	CARBON	220	5%	1/4W
R404	1-249-409-11	CARBON	220	5%	1/4W
		< SWITCH >			
SW401	1-572-841-11	SWITCH, SLIDE (DUBBING SPEED)			
**********					
	A-3275-163-A	GEQ BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C112	1-124-252-00	ELECT	0.33uF	20%	50V
C120	1-124-903-11	ELECT	1uF	20%	50V
C121	1-130-489-00	MYLAR	0.033uF	5%	50V
C123	1-161-050-00	CERAMIC	0.0082uF	10%	25V
C124	1-124-463-00	ELECT	0.1uF	20%	50V
C125	1-161-327-00	CERAMIC	0.0033uF	30%	16V
C126	1-130-489-00	MYLAR	0.033uF	5%	50V
C127	1-162-294-31	CERAMIC	0.001uF	10%	50V
C128	1-124-903-11	ELECT	1uF	20%	50V
C129	1-124-903-11	ELECT	1uF	20%	50V
C130	1-124-903-11	ELECT	1uF	20%	50V
C131	1-161-494-00	CERAMIC	0.022uF		25V
C132	1-124-927-11	ELECT	4.7uF	20%	100V
C212	1-124-252-00	ELECT	0.33uF	20%	50V
C220	1-124-903-11	ELECT	1uF	20%	50V
C221	1-130-489-00	MYLAR	0.033uF	5%	50V
C223	1-161-050-00	CERAMIC	0.0082uF	10%	25V
C224	1-124-463-00	ELECT	0.1uF	20%	50V
C225	1-161-327-00	CERAMIC	0.0033uF	30%	16V
C226	1-130-489-00	MYLAR	0.033uF	5%	50V
C227	1-162-294-31	CERAMIC	0.001uF	10%	50V
C228	1-124-903-11	ELECT	1uF	20%	50V
C229	1-124-903-11	ELECT	1uF	20%	50V
C230	1-124-903-11	ELECT	1uF	20%	50V
C231	1-161-494-00	CERAMIC	0.022uF		25V
C232	1-124-927-11	ELECT	4.7uF	20%	100V
C318	1-126-176-11	ELECT	220uF	20%	10V
		< CONNECTOR >			
CN401	* 1-573-596-11	WAFER, CONNECTOR 4P			
		< IC >			
IC303	8-759-933-38	IC BA3822LS			
		< RESISTOR >			
R120	1-249-414-11	CARBON	560	5%	1/4W
R121	1-249-417-11	CARBON	1K	5%	1/4W
R122	1-249-417-11	CARBON	1K	5%	1/4W
R123	1-249-417-11	CARBON	1K	5%	1/4W
R124	1-249-421-11	CARBON	2.2K	5%	1/4W

GEQ JACK MAIN

Ref. No.	Part No.	Description			Remark
R220	1-249-414-11	CARBON	560	5% 1/4W	
R221	1-249-417-11	CARBON	1K	5% 1/4W	
R222	1-249-417-11	CARBON	1K	5% 1/4W	
R223	1-249-417-11	CARBON	1K	5% 1/4W	
R224	1-249-421-11	CARBON	2.2K	5% 1/4W	
R315	1-249-411-11	CARBON	330	5% 1/4W	
		< VARIABLE RESISTOR >			
VR101	1-241-173-11	RES, VAR, SLIDE 100K/100K (100Hz)			
VR102	1-241-173-11	RES, VAR, SLIDE 100K/100K (300Hz)			
VR103	1-241-173-11	RES, VAR, SLIDE 100K/100K (1KHz)			
VR104	1-241-173-11	RES, VAR, SLIDE 100K/100K (3KHz)			
VR105	1-241-173-11	RES, VAR, SLIDE 100K/100K (10KHz)			
VR106	1-241-172-11	RES, VAR, SLIDE 20K/20K (VOLUME)			
VR107	1-241-171-11	RES, VAR, SLIDE 100K (BALANCE)			
**********					
	1-640-216-11	JACK BOARD			
		**********			
	3-321-122-01	CUSHION, MICROPHONE			
		< MIC >			
ECM1	1-542-157-11	MICROPHONE, ELECTRET CONDENSER (MIC)			
		< JACK >			
J301	1-562-837-11	JACK (PHONES)			
		< RESISTOR >			
R301	1-249-411-11	CARBON	330	5% 1/4W	
**********					
*	A-3275-194-A	MAIN BOARD, COMPLETE			
		**********			
	7-682-546-04	SCREW +PTT 3X5 (S)			
		< FILTER >			
BPF1	1-236-895-11	FILTER, BAND PASS			
		< CAPACITOR >			
C1	1-162-207-31	CERAMIC	22PF	5% 50V	
C4	1-161-377-00	CERAMIC	0.0047uF	30% 16V	
C5	1-162-207-31	CERAMIC	22PF	5% 50V	
C6	1-162-194-31	CERAMIC	3.9PF	10% 50V	
C7	1-161-379-00	CERAMIC	0.01uF	20% 25V	

Ref. No.	Part No.	Description			Remark
C8	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C9	1-162-206-31	CERAMIC	20PF	5% 50V	
C10	1-102-960-00	CERAMIC	24PF	5% 50V	
C13	1-162-290-31	CERAMIC	470PF	10% 50V	
C15	1-161-494-00	CERAMIC	0.022uF	25V	
C16	1-124-126-00	ELECT	47uF	20% 10V	
C17	1-161-377-00	CERAMIC	0.0047uF	30% 16V	
C18	1-161-494-00	CERAMIC	0.022uF	25V	
C19	1-161-494-00	CERAMIC	0.022uF	25V	
C20	1-124-907-11	ELECT	10uF	20% 50V	
C21	1-123-382-00	ELECT	3.3uF	20% 100V	
C22	1-124-903-11	ELECT	1uF	20% 50V	
C23	1-124-463-00	ELECT	0.1uF	20% 50V	
C24	1-161-377-00	CERAMIC	0.0047uF	30% 16V	
C25	1-124-443-00	ELECT	100uF	20% 10V	
C26	1-161-377-00	CERAMIC	0.0047uF	30% 16V	
C27	1-130-486-00	MYLAR	0.018uF	10% 50V	
C28	1-124-927-11	ELECT	4.7uF	20% 100V	
C29	1-130-486-00	MYLAR	0.018uF	10% 50V	
C30	1-124-927-11	ELECT	4.7uF	20% 100V	
C31	1-104-228-00	POLYSTYRENE	0.0015uF	5% 50V	
C32	1-161-379-00	CERAMIC	0.01uF	20% 25V	
C33	1-123-382-00	ELECT	3.3uF	20% 100V	
C34	1-103-741-00	POLYSTYRENE	0.0047uF	5% 50V	
C35	1-162-201-31	CERAMIC	12PF	5% 50V	
C36	1-162-195-31	CERAMIC	4.7PF	10% 50V	
C37	1-162-208-31	CERAMIC	24PF	5% 50V	
C38	1-162-195-31	CERAMIC	4.7PF	10% 50V	
C39	1-104-066-00	POLYSTYRENE	360PF	5% 50V	
C41	1-161-494-00	CERAMIC	0.022uF	25V	
C42	1-162-218-31	CERAMIC	62PF	5% 50V	
C43	1-104-064-00	POLYSTYRENE	300PF	5% 50V	
C44	1-162-195-31	CERAMIC	4.7PF	10% 50V	
C45	1-162-203-31	CERAMIC	15PF	5% 50V	
C47	1-162-208-31	CERAMIC	24PF	5% 50V	
C48	1-161-494-00	CERAMIC	0.022uF	25V	
C49	1-126-233-11	ELECT	22uF	20% 50V	
C50	1-162-286-31	CERAMIC	220PF	10% 50V	
C52	1-161-494-00	CERAMIC	0.022uF	25V	
C53	1-162-282-31	CERAMIC	100PF	10% 50V	
C101	1-162-292-31	CERAMIC	680PF	10% 50V	
C102	1-162-292-31	CERAMIC	680PF	10% 50V	
C104	1-162-292-31	CERAMIC	680PF	10% 50V	
C105	1-124-126-00	ELECT	47uF	20% 10V	
C106	1-130-484-00	MYLAR	0.012uF	5% 50V	
C107	1-124-927-11	ELECT	4.7uF	20% 100V	
C108	1-130-487-00	MYLAR	0.022uF	5% 50V	
C109	1-124-927-11	ELECT	4.7uF	20% 100V	
C110	1-162-286-31	CERAMIC	220PF	10% 50V	

Ref. No.	Part No.	Description			Remark
C111	1-124-927-11	ELECT	4.7uF	20%	100V
C113	1-124-126-00	ELECT	47uF	20%	10V
C114	1-130-483-00	MYLAR	0.01uF	5%	50V
C115	1-161-494-00	CERAMIC	0.022uF		25V
C116	1-162-294-31	CERAMIC	0.001uF	10%	50V
C140	1-124-902-00	ELECT	0.47uF	20%	50V
C141	1-162-294-31	CERAMIC	0.001uF	10%	50V
C142	1-162-286-31	CERAMIC	220PF	10%	50V
C143	1-124-126-00	ELECT	47uF	20%	10V
C144	1-124-443-00	ELECT	100uF	20%	10V
C145	1-130-497-00	MYLAR	0.15uF	5%	50V
C146	1-124-473-11	ELECT	1000uF	20%	10V
C201	1-162-292-31	CERAMIC	680PF	10%	50V
C202	1-162-292-31	CERAMIC	680PF	10%	50V
C204	1-162-292-31	CERAMIC	680PF	10%	50V
C205	1-124-126-00	ELECT	47uF	20%	10V
C206	1-130-484-00	MYLAR	0.012uF	5%	50V
C207	1-124-927-11	ELECT	4.7uF	20%	100V
C208	1-130-487-00	MYLAR	0.022uF	5%	50V
C209	1-124-927-11	ELECT	4.7uF	20%	100V
C210	1-162-286-31	CERAMIC	220PF	10%	50V
C211	1-124-927-11	ELECT	4.7uF	20%	100V
C213	1-124-126-00	ELECT	47uF	20%	10V
C214	1-130-483-00	MYLAR	0.01uF	5%	50V
C215	1-161-494-00	CERAMIC	0.022uF		25V
C216	1-162-294-31	CERAMIC	0.001uF	10%	50V
C240	1-124-902-00	ELECT	0.47uF	20%	50V
C241	1-162-294-31	CERAMIC	0.001uF	10%	50V
C242	1-162-286-31	CERAMIC	220PF	10%	50V
C243	1-124-126-00	ELECT	47uF	20%	10V
C244	1-124-443-00	ELECT	100uF	20%	10V
C245	1-130-497-00	MYLAR	0.15uF	5%	50V
C246	1-124-473-11	ELECT	1000uF	20%	10V
C301	1-124-463-00	ELECT	0.1uF	20%	50V
C302	1-126-233-11	ELECT	22uF	20%	50V
C303	1-124-902-00	ELECT	0.47uF	20%	50V
C304	1-124-907-11	ELECT	10uF	20%	50V
C305	1-124-126-00	ELECT	47uF	20%	10V
C306	1-126-176-11	ELECT	220uF	20%	10V
C307	1-124-443-00	ELECT	100uF	20%	10V
C308	1-162-286-31	CERAMIC	220PF	10%	50V
C309	1-162-290-31	CERAMIC	470PF	10%	50V
C310	1-104-302-11	POLYSTYRENE	0.001uF	5%	50V
C311	1-124-443-00	ELECT	100uF	20%	10V
C312	1-130-485-00	MYLAR	0.015uF	5%	50V
C313	1-161-377-00	CERAMIC	0.0047uF	30%	16V
C314	1-130-487-00	MYLAR	0.022uF	5%	50V
C315	1-124-925-11	ELECT	2.2uF	20%	100V
C316	1-126-233-11	ELECT	22uF	20%	50V

Ref. No.	Part No.	Description			Remark
C317	1-124-927-11	ELECT	4.7uF	20%	100V
C319	1-161-494-00	CERAMIC	0.022uF		25V
C320	1-126-176-11	ELECT	220uF	20%	10V
C321	1-124-119-00	ELECT	330uF	20%	16V
C322	1-161-494-00	CERAMIC	0.022uF		25V
C329	1-123-382-00	ELECT	3.3uF	20%	100V
C340	1-124-120-11	ELECT	220uF	20%	25V
C342	1-126-101-11	ELECT	100uF	20%	16V
		< FILTER >			
CF1	1-579-079-11	FILTER, CERAMIC			
CF2	1-527-870-00	FILTER, CERAMIC			
		< CONNECTOR >			
CN2	* 1-580-044-11	WAFER, CONNECTOR 9P			
CN3	* 1-580-046-11	CONNECTOR 2P			
CN4	* 1-580-049-11	CONNECTOR 10P			
CN5	* 1-580-047-11	CONNECTOR 3P			
CN6	* 1-580-048-11	CONNECTOR 4P			
		< DIODE >			
D1	8-719-107-94	DIODE	1SS202-1		
D3	8-719-107-94	DIODE	1SS202-1		
D301	8-719-107-94	DIODE	1SS202-1		
D302	8-719-107-94	DIODE	1SS202-1		
D303	8-719-160-34	DIODE	RD6.8FB2		
D304	8-719-989-16	DIODE	1S2472		
		< TRIMMER >			
FT1	1-141-328-11	CAP, TRIMMER (FINE TUNING)			
		< IC >			
IC1	8-759-204-01	IC	TA7358P		
IC2	8-759-822-90	IC	LA1805		
IC301	8-759-822-91	IC	LA3246		
IC302	8-759-939-73	IC	BA3308		
IC304	8-759-205-82	IC	TA7282AP		
		< JACK >			
J101	1-580-045-11	JACK (SPEAKER L)			
J201	1-580-045-11	JACK (SPEAKER R)			
J501	1-580-052-11	JACK BOARD, PIN 2P (CD/LINE IN)			
		< COIL >			
L1	* 1-426-321-11	COIL, RF FM			
L2	1-406-393-11	COIL, FM OSC			
L3	1-402-531-11	ANTENNA, FERRITE-ROD (MW)			
L4	1-406-407-11	COIL, LW OSC			
L5	1-402-543-11	COIL, SW ANT			

MAIN

Ref. No.	Part No.	Description	Remark
L6	1-406-414-11	COIL, SW OSC	
L7	1-402-531-11	ANTENNA, FERRITE-ROD (LW)	
L8	1-406-059-00	COIL, OSC	
L101	1-412-457-11	INDUCTOR 2.7mH	
L201	1-412-457-11	INDUCTOR 2.7mH	
		< TRANSISTOR >	
Q1	8-729-900-61	TRANSISTOR DTA114ES	
Q101	8-729-900-80	TRANSISTOR DTC114ES	
Q102	8-729-201-05	TRANSISTOR 2SC2878-B	
Q201	8-729-900-80	TRANSISTOR DTC114ES	
Q202	8-729-201-05	TRANSISTOR 2SC2878-B	
Q301	8-729-900-80	TRANSISTOR DTC114ES	
Q302	8-729-900-80	TRANSISTOR DTC114ES	
Q303	8-729-100-13	TRANSISTOR 2SC2001-K2	
Q304	8-729-100-13	TRANSISTOR 2SC2001-K2	
Q305	1-807-940-11	TRANSISTOR KTC9013	
Q306	8-729-173-38	TRANSISTOR 2SA733-K	
Q307	8-729-904-39	TRANSISTOR DTC114TS	
Q308	8-729-904-39	TRANSISTOR DTC114TS	
Q310	8-729-900-61	TRANSISTOR DTA114ES	
Q311	8-729-900-61	TRANSISTOR DTA114ES	
		< RESISTOR >	
R1	1-249-405-11	CARBON 100 5% 1/4W	
R4	1-249-402-11	CARBON 56 5% 1/4W	
R5	1-249-426-11	CARBON 5.6K 5% 1/4W	
R6	1-249-422-11	CARBON 2.7K 5% 1/4W	
R7	1-249-417-11	CARBON 1K 5% 1/4W	
R8	1-249-423-11	CARBON 3.3K 5% 1/4W	
R9	1-249-423-11	CARBON 3.3K 5% 1/4W	
R10	1-249-440-11	CARBON 82K 5% 1/4W	
R11	1-249-404-00	CARBON 82 5% 1/4W	
R12	1-249-425-11	CARBON 4.7K 5% 1/4W	
R13	1-249-423-11	CARBON 3.3K 5% 1/4W	
R14	1-249-425-11	CARBON 4.7K 5% 1/4W	
R15	1-249-423-11	CARBON 3.3K 5% 1/4W	
R16	1-249-431-11	CARBON 15K 5% 1/4W	
R17	1-249-405-11	CARBON 100 5% 1/4W	
R19	1-249-423-11	CARBON 3.3K 5% 1/4W	
R20	1-249-402-11	CARBON 56 5% 1/4W	
R101	1-249-411-11	CARBON 330 5% 1/4W	
R102	1-249-429-11	CARBON 10K 5% 1/4W	
R103	1-249-422-11	CARBON 2.7K 5% 1/4W	
R104	1-247-887-00	CARBON 220K 5% 1/4W	
R105	1-249-436-11	CARBON 39K 5% 1/4W	
R106	1-247-717-11	CARBON 2.2K 5% 1/4W	
R107	1-249-422-11	CARBON 2.7K 5% 1/4W	
R109	1-249-437-11	CARBON 47K 5% 1/4W	

Ref. No.	Part No.	Description	Remark
R110	1-249-420-11	CARBON 1.8K 5% 1/4W	
R112	1-249-432-11	CARBON 18K 5% 1/4W	
R113	1-249-430-11	CARBON 12K 5% 1/4W	
R114	1-249-438-11	CARBON 56K 5% 1/4W	
R115	1-249-413-11	CARBON 470 5% 1/4W	
R116	1-249-408-11	CARBON 180 5% 1/4W	
R117	1-249-430-11	CARBON 12K 5% 1/4W	
R141	1-249-401-11	CARBON 47 5% 1/4W	
R142	⚠ 1-249-451-11	CARBON 2.2 5% 1/4W	F
R143	1-247-700-11	CARBON 100 5% 1/4W	
R144	1-249-421-11	CARBON 2.2K 5% 1/4W	
R201	1-249-411-11	CARBON 330 5% 1/4W	
R202	1-249-429-11	CARBON 10K 5% 1/4W	
R203	1-249-422-11	CARBON 2.7K 5% 1/4W	
R204	1-247-887-00	CARBON 220K 5% 1/4W	
R205	1-249-436-11	CARBON 39K 5% 1/4W	
R206	1-247-717-11	CARBON 2.2K 5% 1/4W	
R207	1-249-422-11	CARBON 2.7K 5% 1/4W	
R209	1-249-437-11	CARBON 47K 5% 1/4W	
R210	1-249-420-11	CARBON 1.8K 5% 1/4W	
R212	1-249-432-11	CARBON 18K 5% 1/4W	
R213	1-249-430-11	CARBON 12K 5% 1/4W	
R214	1-249-438-11	CARBON 56K 5% 1/4W	
R215	1-249-413-11	CARBON 470 5% 1/4W	
R216	1-249-408-11	CARBON 180 5% 1/4W	
R217	1-249-430-11	CARBON 12K 5% 1/4W	
R241	1-249-401-11	CARBON 47 5% 1/4W	
R242	⚠ 1-249-451-11	CARBON 2.2 5% 1/4W	F
R243	1-247-700-11	CARBON 100 5% 1/4W	
R244	1-249-421-11	CARBON 2.2K 5% 1/4W	
R300	1-249-423-11	CARBON 3.3K 5% 1/4W	
R302	1-249-411-11	CARBON 330 5% 1/4W	
R303	1-249-423-11	CARBON 3.3K 5% 1/4W	
R304	1-249-410-11	CARBON 270 5% 1/4W	
R305	1-249-441-11	CARBON 100K 5% 1/4W	
R306	1-249-437-11	CARBON 47K 5% 1/4W	
R307	1-249-425-11	CARBON 4.7K 5% 1/4W	
R308	1-249-437-11	CARBON 47K 5% 1/4W	
R309	1-249-405-11	CARBON 100 5% 1/4W	
R310	1-259-377-11	CARBON 2.2M 5% 1/6W	
R311	1-249-409-11	CARBON 220 5% 1/4W	
R312	1-249-410-11	CARBON 270 5% 1/4W	
R313	1-249-429-11	CARBON 10K 5% 1/4W	
R314	1-249-393-11	CARBON 10 5% 1/4W	
R316	1-249-429-11	CARBON 10K 5% 1/4W	
R317	1-249-425-11	CARBON 4.7K 5% 1/4W	
R318	1-249-429-11	CARBON 10K 5% 1/4W	
R319	1-249-418-11	CARBON 1.2K 5% 1/4W	
R320	1-249-469-11	CARBON 100K 5% 1/4W	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
R322	1-249-405-11	CARBON	100	5% 1/4W	
R323	1-249-423-11	CARBON	3.3K	5% 1/4W	
R324	1-247-698-11	CARBON	68	5% 1/4W	
R326	1-249-399-11	CARBON	33	5% 1/4W	
R327	⚠ 1-212-849-00	FUSIBLE	4.7	5% 1/4W	F
R328	1-249-414-11	CARBON	560	5% 1/4W	
R329	1-249-414-11	CARBON	560	5% 1/4W	
R330	1-249-409-11	CARBON	220	5% 1/4W	
R342	1-249-415-11	CARBON	680	5% 1/4W	
R343	1-249-432-11	CARBON	18K	5% 1/4W	
R344	1-249-426-11	CARBON	5.6K	5% 1/4W	
		< SWITCH >			
SW1	1-572-615-11	SWITCH, SLIDE (BAND)			
SW2	1-572-419-11	SWITCH, SLIDE (FUNCTION)			
SW3	1-572-420-11	SWITCH, SLIDE (REC/PB)			
SW4	1-572-421-11	SWITCH, SLIDE (ISS/FM MODE)			
		< TRANSFORMER >			
T1	1-404-741-11	TRANSFORMER			
T2	1-404-925-11	IFT, AM			
T3	1-424-400-11	COIL, FM DET			
T7	1-406-238-11	COIL, OSCILLATION			
		< TRIMMER >			
TC1	1-141-232-00	CAP, TRIMMER			
TC2	1-141-232-00	CAP, TRIMMER			
TC3	1-141-245-00	CAP, TRIMMER	30PF		
TC4	* 1-141-227-00	CAP, TRIMMER	20PF		
TC5	1-141-245-00	CAP, TRIMMER	30PF		
		< VARIABLE CAPACITOR >			
VC1	1-151-680-11	CAP, VAR, PVC (FC1, FC2, AC2) (TUNING)			
		< VARIABLE RESISTOR >			
VR1	1-228-994-00	RES, ADJ, METAL 10K (VCO)			
VR301	1-228-989-00	RES, ADJ, METAL 470 (NORMAL SPEED)			
VR302	1-228-991-00	RES, ADJ, METAL 2.2K (HIGH SPEED)			

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	* 1-635-744-11	POWER BOARD			
		**********			
	1-533-243-11	HOLDER, FUSE			
		< CAPACITOR >			
C401	1-124-887-00	ELECT	3300uF	20%	16V
C402	1-161-494-00	CERAMIC	0.022uF		25V
C403	1-161-494-00	CERAMIC	0.022uF		25V
C404	1-161-494-00	CERAMIC	0.022uF		25V
C405	1-161-494-00	CERAMIC	0.022uF		25V
C406	1-130-495-00	MYLAR	0.1uF	5%	50V
		< CONNECTOR >			
CN7	* 1-580-046-11	CONNECTOR 2P			
		< DIODE >			
D401	8-719-200-02	DIODE 10E2			
D402	8-719-200-02	DIODE 10E2			
D403	8-719-200-02	DIODE 10E2			
D404	8-719-200-02	DIODE 10E2			
		< FUSE >			
F101	⚠ 1-532-285-00	FUSE, TIME-LAG (1.25A 250V)			
		< JACK >			
J401	⚠ 1-526-838-11	INLET, AC 2P (~AC IN)			
		< TRANSFORMER >			
T401	⚠ 1-448-780-11	TRANSFORMER, POWER			

****

MISCELLANEOUS

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63	1-575-951-11	CORD, SPEAKER
ANT1	1-501-482-11	ANTENNA, TELESCOPIC
F101	⚠ 1-532-285-00	FUSE, TIME-LAG (1.25A 250V)
HE101	1-543-558-11	HEAD, ERESE
HP101	X-3364-434-1	HEAD ASSY (PLAYBACK)
HRP101	1-543-727-11	HEAD (RECORD/PLAYBACK)
J401	⚠ 1-526-838-11	INLET, AC 2P (AC IN)
M101	* 3-369-955-01	MOTOR ASSY
SL101	1-571-745-11	SWITCH, LEAF (DECK-A PB)
SL102	1-571-556-11	SWITCH, LEAF (DECK-A FF/REW)
SL201	1-571-555-11	SWITCH, LEAF (DECK-B PB/REC)
SL202	1-572-394-11	SWITCH, LEAF (DECK-B FF/REW)
SL401	1-571-745-11	SWITCH, LEAF (DIRECTION)
SP101	1-503-492-11	SPEAKER
SP201	1-503-492-11	SPEAKER
T401	⚠ 1-448-780-11	TRANSFORMER, POWER

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-575-131-11	CORD, POWER	
*	3-324-066-01	SHEET, PROTECTION	
*	3-369-666-01	INDIVIDUAL CARTON	
*	3-397-807-01	CUSHION	
	3-753-269-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGESE) (AEP)	
	3-753-269-41	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN)	

****

HARDWARE LIST

****

#1	7-685-646-79	SCREW, TAPPING
#2	7-685-152-19	SCREW +P 3X25 TYPE2 NON-SLIT
#3	7-685-647-79	SCREW, TAPPING
#4	7-682-546-04	SCREW +PTT 3X5 (S)
#5	7-621-255-25	SCREW +PTT 2X4 (S)
#6	7-621-775-40	SCREW +B 2.6X8
#7	7-624-105-04	STOP RING 2.3, TYPE -E
#8	7-685-651-79	SCREW +BVTP 3X20 TYPE2
#9	7-682-549-04	SCREW +B 3X10
#11	7-685-133-19	SCREW +P 2.6X6 TYPE2
#12	7-621-772-68	SCREW +BVTT 2X12 (S)
#13	7-621-770-67	SCREW, TOTSU PTTWH 2.6X6
#14	7-624-190-11	STOP RING 3, TYPE -CS
#15	7-621-770-XX	SCREW +PTT 2.6X8 (S)
#16	7-621-255-55	SCREW, TOTSU P 2X8
#17	7-621-255-15	SCREW +P 2X3
#18	7-624-106-04	STOP RING 3.0 TYPE -E
#19	7-628-253-90	SCREW +PS 2.6X4
#20	7-621-770-87	SCREW +PTT 2.6X5 (S)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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General Audio Group

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